SUPER MOCK 2026
SCIENCE 2 & 1
Essay & Objective
2 hours: 15 minutes

2&1

Name: .....

Index Number: .....

FINALPREPS
EXAMINATIONS BUREAU

Special Private Mock Examinations for BECE Candidates

APRIL 2026

SCIENCE 2 & 1
(ESSAY AND OBJECTIVE TEST)

2 hours

INSTRUCTIONS

Do not open this booklet until you are told to do so. While you are waiting, read and observe the following instructions carefully. Write your name and index number in ink in the spaces provided above.

This booklet consists of two papers. Answer Paper 2 which comes first, in your answer booklet and Paper 1 on your Objective Test answer sheet provided. Paper 2 will last 75 minutes after which the answer booklet will be collected. Do not start Paper 1 until you are told to do so. Paper 1 will last 45 minutes.

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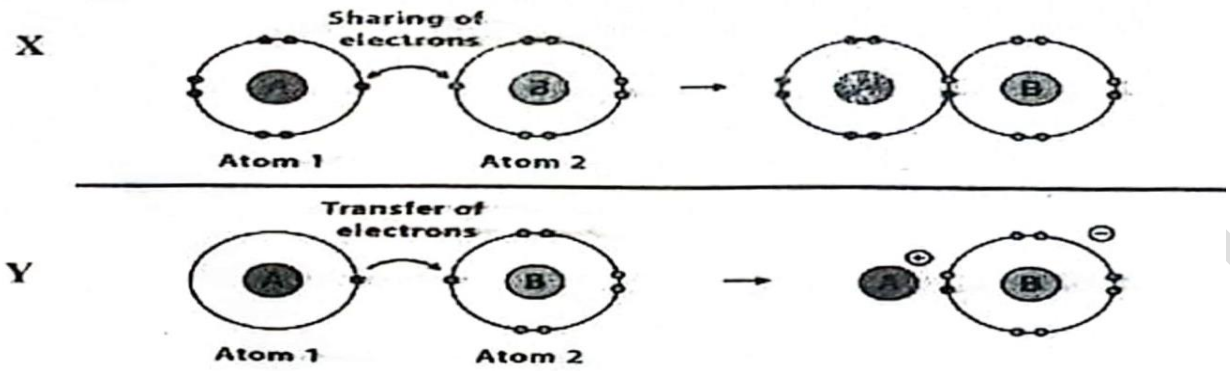
PAPER 2 **1hour: 25 minutes**

[100 marks]

This paper is in two *parts:* I and II. *Answer Question* 1 *in* ***Part* I** *and any other* ***three*** *questions in* ***Part* II**. *Answer* all *the questions in your answer booklet.* ***Credit*** *will be given for* ***clarity*** *of* ***expression*** *and* ***orderly*** *presentation of* ***materials.***



PART I

TEST OF PRACTICAL WORK

[40 marks]

Answer* all *Questions from this part.

1 (a) Compounds and molecules are formed through various types of atomic bonds which influence their properties and characteristics. Below is an illustration of two types of atomic bonds. Carefully study the diagrams below and use them to answer the questions that follows.

(i) Identify the types of atomic bonds shown in X and Y above. [2 marks]

(ii) Give reason for your answers given in (i) above about X and Y [1 mark]

(iii)Tabulate three (3) differences between atomic bonds in X and Y respectively. [3 marks]

(iv) List two (2) examples each of compounds that are likely to have atomic bond

α. Atomic bond X [2 marks]

β. Atomic bond Y [2 marks]

(b) Study the diagram below carefully and answer the questions that follow.

I							He 2 Helium A_r = 4
Li 3 Lithium A_r = 7	III	B 5 Boron A_r = 11	VI	N 7 Nitrogen A_r = 14	VIII	F 9 Fluorine A_r = 19	X
II	Mg 12 Magnesium A_r = 24	V	Si 14 Silicon A_r = 28	VII	S 16 Sulphur A_r = 32	IX	Ar 18 Argon A_r = 40
K 19 Potassium A_r = 39	IV						

(i) Give a suitable title to the diagram above.

(ii) Name the chemical elements labelled **I** to **X**.

(iii) Write the chemical symbols of the elements named in (ii) above.

(iv) From the figure above, name **two** examples **each** of;

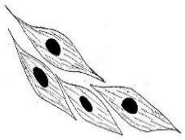
(a) **metals**,

(b) **non-metals**,

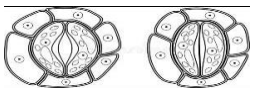
(c) **noble gases** and their uses

(v)What name is given to the vertical arrangement of elements on the figure above?

(c) In an investigation to show some specialized cells in plants and animals, Mr. Benjamin a science teacher at Kpone International school made various slides of species of plants and animals and allowed his students to view the slides under a light microscope and the diagrammatic representations of such cells were made.



I



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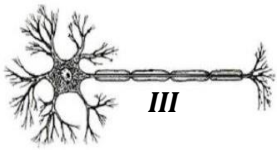

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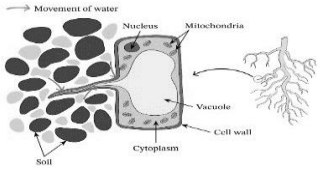
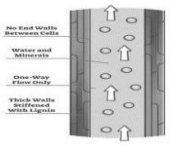


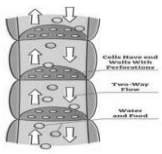
IV

(i) Identify the specialized cells illustrated as I, II, III, IV, V, VI, VII and VIII respectively [4 marks]

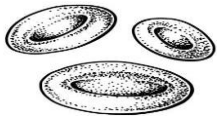
(ii) Classify the each of the cells above under plants and animal cells.



V



VI



VII



VIII

(iii) Which of the cells above perform each of the following functions listed below:

α. Receiving and sending stimuli and signals to the brain and the spinal cord

β. Transports soluble mineral nutrients and water molecule from the roots to the aerial parts of the plants.

γ. Regulates gaseous exchange in plants system. [3 marks]

(iv) Give any two (2) parts of the cell III that enables it to function as a specialized cell. [2 marks]

(v) Explain briefly to your classmate sitting next to you in writing: ***"What is meant by the term specialized cell "?*** [1 mark]

(d) Fig. 1(d) illustrates an experiment performed by reacting hydrochloric acid with potassium hydroxide. Study it carefully and answer questions that follow.

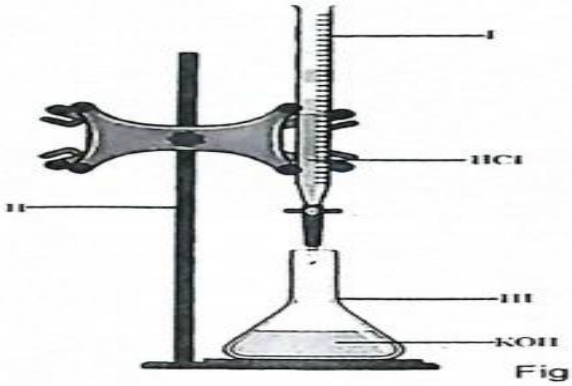


Fig. 1(d)

(i) What name is given to the reaction above? [2 marks]
(ii) Name the parts labelled I, II and III. [3 marks]
(iii) Name the compunds formed after the reaction. [2 marks]
(iv) Write a balanced chemical equation for this reaction. [3 marks]

PART II

[60 marks]

Answer **three** *questions* **only** *from this part.*

2. (a) (i) Define the term "salt" [1mark]

(ii) Name two (2) examples of salts formed from a neutralization reaction [2marks]

(b) (i) Name three (3) blood cells you know. (1 ½ marks)

(ii) Distinguish between a red blood cell and a white blood cell [2marks]

(iii) State briefly the function of platelets in blood cells [1 mark]

(iv) Name any four (4) basic components of an electrical circuit [2 marks]

(c) Draw to show the arrangements of the following electrical components in a circuit:

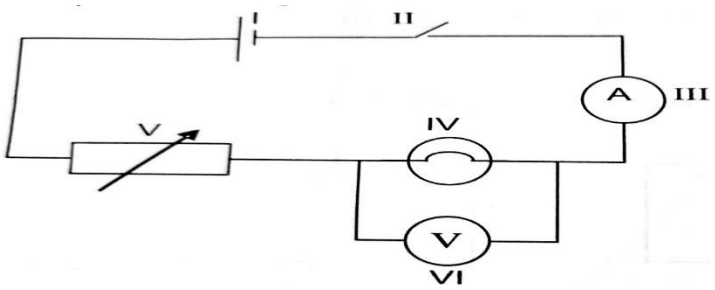
(i) A dry cell, two bulbs, ammeter and an opened key

(ii) Two dry cells connected to in series, two resistors in series and an ammeter. [3marks]

(iii) Define the term ***inertia*** [1 mark]

(iv) Mention the types of inertia you know [1 mark]

(d) In a lesson in class, a student constructed the electrical circuit below to show the flow of electrical current from one point of electrical conductor to the other with some other electrical components.



(i) Indicate the meanings of the electrical components illustrated as I, II, III, V and VI respectively. [2 marks]

(ii) Write briefly the use of the component II and III in the illustration above [2 marks]

(iii) What would be the energy transformation in the circuit diagram when part II is closed [2 marks]

3. (a) **Three solutions A, B and C have pH values 1, 14 and 7 respectively. Solution C was formed after mixing equal volumes of Solutions A and B.**

i. What is the nature of solution A, B and C? (3 marks)

ii. About $2cm^3$ each of solution A, B and C were placed in three separate test tube and blue and red litmus papers were dipped into each of them. State the observation you will make in all three solutions by copying and completing the table below: (4 marks)

	Observation		
$2cm^3$ of solution	**Blue litmus paper**	**Red litmus paper**	**Conclusion**
Solution A			
Solution B			
Solution C			

iii. Give the name of the reaction that took place when solution A was reacted with solution B to form solution C. (2 marks)

(b) (i) What is the nitrogen cycle? (1 mark)

(ii) List the stages in the nitrogen cycle in order as they occur biologically. (2½ marks)

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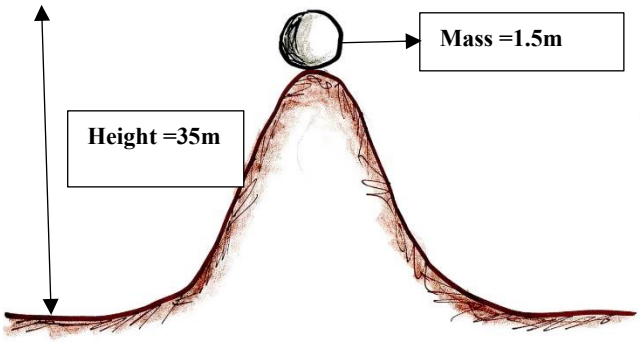
(c) (i) What is energy? [1 mark]

(ii) Mention five (5) forms of energy you know [2 ½ marks]

(iii) Name two (2) substances that are transported by the blood [1 mark]

(d) (i) What is potential energy? [1 mark]

(ii) calculate the potential energy of the object below. [take g= 10m/s] [2 marks]



4. (a) State ***the method*** that could be used to separate each of the following mixtures and ***explain*** your answer in each case;

(i) alcohol and water;

(ii) sawdust and iron filings;

(iii) powdered camphor and sand; [3 marks]

. (b) Consider the following daily applications life. State which of Newton's laws of motion do each belong with reasons.

(i) Running or walking

(ii) Hitting a tennis ball

(iii) A metallic ball is placed on a smooth surface and given a push; it will be in motion unless it hit a wall that makes it to come to a stop. [3 marks]

(c) (i) Draw a bar of magnet showing magnetic lines [2 marks]

(ii) Distinguish between *prokaryotic* cell and *eukaryotic* cell. [2 marks]

(iii) Name the appropriate agricultural tool used in performing each of the following on-farm activities:

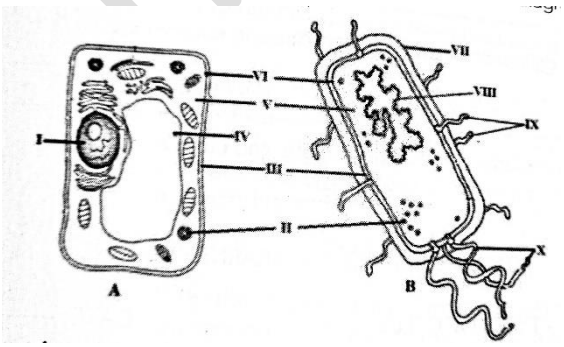
(α) Supplying water to growing crops;

(β) Castrating farm animals;

(Γ) Harvesting rice and cutting grass to feed animals; [3 marks]

(d) A student observed two different cells under a microscope and realized one possesses a well - defined nucleus whiles the other did not. Use the structure of the cells shown below to answer the question that follows.

(i) What type of cell do you think A and B are likely to be? (2 marks)





(ii) Suggest two (2) differences between cell A and B (2 marks)

(iii) Name one possible function each of parts I and IV. (3marks)

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5. (a) (i) (2 marks)

Find the values of R, S, U, V, W, X, Y and Z in the table below.

Isotopes	Atomic number	Number of neutrons	Mass number
$^{37}_{17}K$	R	S	20
$^{U}_{V}M$	9	10	W
$^{X}_{Y}N$	16	Z	32

(ii) Give ***two (2)*** sources of organic fertilizer. (2 marks)

(iii) State ***three (3)*** benefits derived from animal production **[**3marks**]**

(b) (i) What is a crop maturity? (1 mark)

(iii) What are some two signs or indicators that shows that a crop is matured for harvesting? [2 marks]

(c) An atom X has 12 protons in it nucleus.

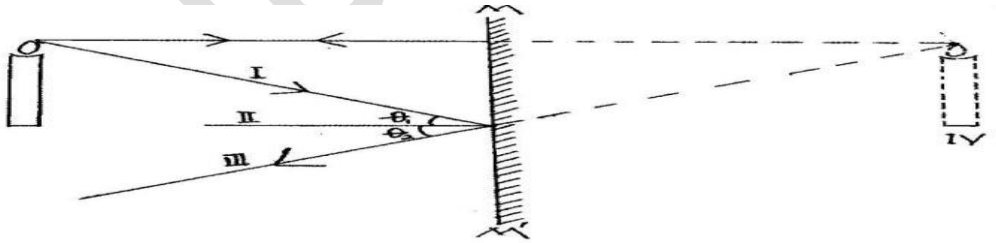
(ii) What is the electron number of the atom X? [1 mark]

(iii) What form of ion will X form after losing two valence electrons? [1 mark]

(iv) Indicate the electronic configuration of atom X? [1 mark]

(d) (i) Describe ***briefly*** the formation of Magnesium oxide molecule after an interaction between $_{12}Mg$ and $_{8}O$ atoms. **[2 marks]**

(ii) The diagram below illustrates a burning candle placed in front of a plane mirror MM′ and an image of the candle formed in the mirror. *Study the diagram carefully and answer the questions that follow*



(i) Name the parts labelled **I, II, III** and **IV** [2marks]

(ii) State the relationship between angles θ_1 and θ_2 [1 mark]

(iii) Explain why **IV** is represented in broken lines [2 marks]

END OF PAPER 2

DO NOT TURN THIS PAGE

UNTIL YOU ARE TOLD TO DO SO
YOU WILL BE PENALIZED SEVERELY IF YOU ARE FOUND LOOKING AT THE NEXT PAGE BEFORE YOU ARE TOLD TO DO SO

SECTION A

Answer all the following questions.
Each question is followed by four *options lettered* A *to* D. *Find out the correct option for each question and shade* in pencil *on your answer sheet the space which bears the same letter as the option you have chosen. Give only* one *answer to each question. An example is given below.*

The element with the chemical symbol Si is

A. Silver
B. Silicon
C. Selenium
D. Sodium

The correct answer is Silicon*, which is lettered* B *and therefore answer space* B *would be shaded*

[A] [■] [C] [D]

Think carefully before you shade the answer space. Erase completely any answer you wish to change.
Do all rough work on this paper. Now answer the following questions.

1. The conversion of inlet nitrogen from the atmosphere into the environment in the nitrogen cycle can be termed as……..
A. ammonification B. nitrification
C. nitrogen fixation D. detoxification

2. the main reason why hay making is less common in tropical Africa especially Ghana is that ……..
A. the animals can forage all year round
B. pastures contain abundant forage all year-round
C. grazing animals are only reared for ritual purposes D. grazing animals are reared under intensive system

Use the illustration below to answer questions 3 and 4



3.From your knowledge in animal production, the device shown above is a/ an

A. Incubator B. Farmers shoe rack
C. Feeding trough D. Feeding hutch

4. The device above is likely to be used for

A. Storing animal feed B. Feeding farm animals C. Keeping eggs of poultry warm D. Watering poultry birds

5. All the following measures can be considered as climate change adaptation factors except……...

A. The use of renewable sources of energy B. Planting of tress C. An increase of industrial pollutants D. Legislation on bush burning

6. Which of the following are celestial bodies are rocky in nature?

I – inner planets II- Outer planets

III -Asteroids IV – Meteoroids

A. I and II only B. III and IV only
C. I, II and III only D.I, III and IV only

7. A tomato juice turns a moist blue litmus red in a litmus test. This implies the tomato is slightly…….

A. basic B. acidic C. neutral D. alkaline

8. The conversion of ammonium ions into nitrites in the nitrogen cycle is the main function of the bacteria…...

A. Rhizobium B. Nitrobacter
C. Nitrosomonas D. Azotobacter

9. A meteoroid that enters the earth's atmosphere and eventually falls on the earth surface is called……..
A. comets B. asteroids
C. meteorite D. trojan Jupiter

10. Which of the following manufacturing activities makes it safe for workers to use farm tools?
A. Filing B. painting
C. labelling D. sheathing

11. In wiring of houses, appliances are connected in parallel to enable….

A. each appliance to have the same voltage. B. power to be saved
C. each appliance to have the same current. D. the power to be stepped up.

12. Purple-leaf coloration in plants is a symptom of deficiency of

A. magnesium. B. phosphorus.

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C. nitrogen. D. Potassium

13. Gastric juice contains the enzyme known as

A. pepsin. B. Ptyalin C. lipase. D. Erepsin.

14. The erythrocytes are responsible for ……

A. fighting against diseases

B. transporting carbon dioxide away from the cells

C. producing antibodies in the body D. forming clots

15. What is the power rating of an electric iron with resistance 8Ω that uses 10A of an electric current in 2 hours.?
A. 8W B.80W C. 0.8W D. 800W

16. Which of the following statements about a real image is true?
A. It is produced on a plane mirror
B. It is formed as a result of apparent intersection of light
C. It is erect
D. It is turned upside down

17. Which of the following features about an image formed by a pinhole camera is true?
A. An image that is 50 cm away from the camera is formed by an object that is also 50 cm away from the camera
B. A 15- metre long tree may appear as being 5cm long on screen
C. The lower part of the object appears as the lower part of the image
D. the image captured in the field can be viewed in the classroom

18. A 100kg lady climbs a 3 meter- high ladder in 5s. What is the rate at which she climbed the ladder?
A. 100W B. 300W C. 600W D. 1500W

19. The main source(s) of tools for farmers are
A. factory made tools only B. self – made tools only C. factory made and self – made tools only D. None of the above.



Figure A2

20. Figure A2 is basic tool used by most farmers in animal production. The tool is likely to be
A. Feeding trough B. Water trough

C. Desilting trough D. Drenching trough

21. The practice of sweeping, recovering, covering and compression of waste into containers are all examples of ……
A. waste management practices
B. waste management methods
C. municipal waste methods
D. waste management stages s

22. Allowing a given field to remain uncultivated within a growing season is known as……..
A. Uncultivated period B. resting period

C. fallow period D. unfertilized period

23. All group 2 metals have a charge of
A. + 2 B. – 2 C. 2- D. 2+

24. The trachea of the human respiratory system branches into two smaller tubes called …….
A. Alveoli B. Bronchi C. Bronchus
D. Bronchus

25. The nutritive value of sugar is
A. proteins B. minerals
C. Carbohydrates D. fats and oils

26. The smell of water is …….
A. irritating B. pungent C. odorless
D. sweat

27. The main composition of alloys are usually
A. solid – liquid mixtures
B. solid – gas mixtures
C. solid – solid mixtures
D. Liquid- gas mixtures

28. Partial shadow formed on a screen can also be termed as……
A. Mirage B. Eclipse

C. Umbra D. Penumbra

29. The rhizome is a planting material for ……
A. Onion B. Ginger

C. Plantain D. Cassava

30. A given quantity of feed given a farm animal in a specific period of time can be described as…….
A. silage B. Basal feed
C. ration D. hay

31. The total number of atoms present in SO_4
A. 2 B. 3 C. 4 D. 5

32. The following chemical substances all exhibits ionic properties except?
A. Ammonia B. Sodium Chloride
C. Lithium Bromide D. Magnesium Oxide

33. Increased levels of air pollution in our environments leads to …….
A. acid rain B. global warming
C. soil pollution D. green house

34. Photosynthesis is to carbon consumption, while ……. Is to carbon emission
A. pollution B. respiration
C. transpiration D. excretion

35. Which of these farm animals chew the cud?
A. An ostrich B.A pig
C. A goat D. A rabbit

36. Ohms law states that …….

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A. I = VR B. V= R – I_2
C. V= IR D. R = VI^2

37. All the following are adaptive features of a organism except …
A. locomotion B. streamlined body
C. camouflage D. mimicry

38. The blue planet in our solar system is likely to be ……
A. Uranus B. Jupiter
C. Venus D. Mercury

39. Which of the following is not a digestive juice?
A. Bile B. Lipase
C. Amylase D. Renin

40. Select the odd one out
A. Amoeba B. nerve cell
C. paramecium D. Spirogyra

END OF PAPER 1

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